CLAIMS

1. Sol-gel process for the production of manufactured articles containing an incompressible insert, comprising the steps of:

a) providing an incompressible insert (33; 42; 52);

b) providing a container (10; 20) which can retain said incompressible insert in rigidly fixed position to define a space (17; 26) between the inside surface of said container and the external surface of said insert, and which can be rotated around the axis of said insert;

c) fixing said insert to the inside of said container in such a way as to rotate said insert as one with said container;

d) filling said space with a sol;

e) rotating said container containing said sol and said insert around the axis of the latter for all the time necessary to complete gelling of said sol;

f) opening said container and extracting the composite comprising a wet gel adhering to said incompressible insert;

g) drying said wet gel.

2. A process according to Claim 1, characterized in that said container in step e) is placed in rotation at such speed that the product **P** of the angular velocity ω measured in radians per second (rad/s) and the radius **r** of the insert measured in centimeters (cm) is between about 20 and about 250 rad x cm/s.

3. A process according to Claim 1 or 2, characterized in that said incompressible insert is cylindrical.

4. A process according to any of the preceding Claims, characterized in that said container is cylindrical.

5. A process according to Claim 1, characterized in that the opening of said container and the extraction of said composite in step f) is carried out inside a bath containing a liquid.

6. A process according to Claim 5, characterized in that the liquid in which step f) is carried out is selected from alcohols, chlorinated solvents, or CO_2 liquid.

7. A process according to Claim 1, characterized in that step g) of drying of the wet gel is carried out in hypercritical way preceded by a gel-washing phase.

8. A process according to Claim 1, further comprising a step of glass densification of the dry gel adhering to said incompressible insert by means of heat treatment at a temperature within the range of about 800 to about 1400°C.

9. Composite manufactured article (40) comprising a dry gel adhering to an incompressible insert obtained according to the process of any of Claims 1 to 7.

10. Composite manufactured article comprising a glass part adhering to an incompressible insert obtained according to the process of any of Claims 1 to 8.

11. Preform for optical fiber (50) obtained according to the process of any of Claims 1 to 8, in which the covering (51) consists of pure silicon dioxide and the incompressible insert (52) is a dense cylinder of a mixed glass of silica base with additions of oxides of other elements.

12. Preform for optical fiber according to Claim 11, in which the insert has a chemical composition selected from SiO_2-GeO_2, SiO_2-P_2O_5-GeO_2, SiO_2-Al_2O_3, SiO_2-TiO_2, SiO_2-GeO_2-Ln_2O_3, SiO_2-P_2O_5-GeO_2-Ln_2O_3, SiO_2-Al_2O_3-Ln_2O_3 and SiO_2-TiO_2-Ln_2O_3, where Ln indicates any element of the Lanthanide series.